

PATHWAYS

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ACTION AND INTEGRAL PEDAGOGY

An Action School

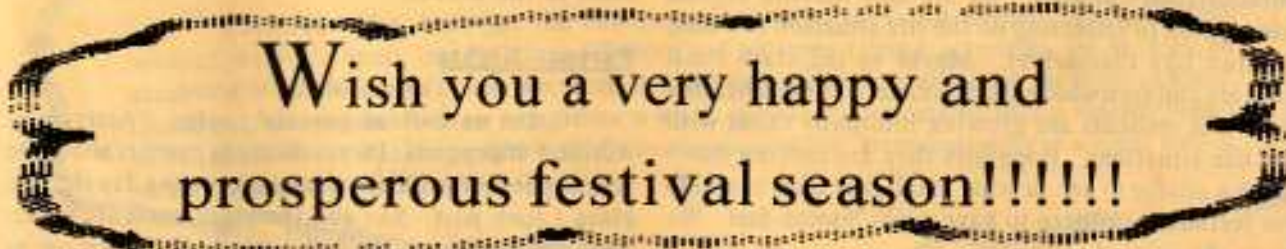
"There is plenty of action in our school," says the headmaster. "The students are active in the classes, answering questions, doing class work, solving problems and, after school, they do homework. Besides, we have games, quizzes, student run assemblies. We have science, geography, history, art, environment exhibitions. We have cultural programmes regularly, parents' nights, speech competitions, scouts and guides days, even social service camps. In fact, we have 10 different clubs for different hobbies and activities, ranging from photography to butterfly collections. And of course at the time of examinations there is plenty of action during the exams for the students, and afterwards for the staff, evaluation the papers."

Sounds like a very good school. And one which is putting into operation the Integral Pedagogy we have been looking at in the last 4 issues of Pathways. For Action is the fourth element in the teach-

ing-learning methodology paradigm of context, experience, reflection, action, evaluation. But are all the 'actions' described above really actions in the Integral Pedagogy sense or are they what I would like to call activities.

What is Action ?

In Integral Pedagogy, "Action refers to internal human growth based upon experience that has been reflected upon as well as its manifestation externally." The interior growth we are talking about is a growth in positive attitudes, in the ability to make decisions oneself, in being able to clarify priorities, in personally appropriating some truth, some skill, and especially in growing in compassion and commitment to others. The interior human growth will eventually show itself exteriorly. My positive attitude to people of different beliefs may move me to organise an interfaith prayer service on the occasion of unity



Wish you a very happy and
prosperous festival season!!!!!!

day. My reflection on the plight of blind people may lead me to sympathy for the blind and then to exterior action by encouraging fellow students to collect money for a local blind school.

Action in the Classroom

Let us look at the classroom scene. I teach the meaning of the words of a poem. The students copy down the meanings and memorise them. They are active, and yet they are passive ! Their action is merely an activity. We are in the two step teaching-learning model where there is no reflection. I now ask a student to read the poem and ask the students to write down how they felt when the poem was being read. They are reflecting on the effect of the poem on themselves, on their feelings. They are learning to understand their feelings. They are growing in an understanding of their feelings. And perhaps if the poem conveys to them the beauty of a tree, they not only grow in the appreciation of trees but choose to plant trees or protect trees.

Or I am teaching social studies - about election to parliament. How many are elected. The process of filing a nomination for election. The approximate number of voters. Losing your deposit. And so on. All information to be memorised. Plenty of activity. But then I go on to initiate a discussion on whether later on the students would like to stand for election, what they would do if elected. The students are reflecting on a real life situation, and are asked to reflect together and to make choices, their own choices, not the ideas of the teacher. Here we certainly have activity as the students, in groups, talk together but we also have action. They are growing in an understanding of the issues in fighting an election, in the responsibility a member of parliament has, in the constraints he/she may face.

Or I may be teaching about a wholesome diet and outline the vegetables, fruit, milk requirements needed for a healthy person. The various possibilities are discussed. There is activity and a certain amount of action as the students work out for themselves different combinations which would give a wholesome diet, and the cost involved. But then I ask them if they know of anyone who cannot afford such a diet, how they feel when they see example young thin, malnourished children. We are now moving beyond information to reflecting on the life situation of young children like themselves. Maybe in the class itself there are children whose parents cannot afford a healthy diet. The students are growing internally faced with real life situations. Hopefully they are moving slowly to a choice to see in what small way they can help less fortunate children to have a wholesome diet. We are in the area of action.

Teaching Students to Choose

In the keynote address given recently to a gathering of teachers from different schools, the guest speaker, after stressing the unique importance of the work of a teacher, suggested that "in a society as wide open and drenched in get-it-now materialism, the most important seeds you can plant are those that teach your students to make choices. Most of your students can be just about anything they want to be, do just about anything they want to do and indulge in any pleasure they wish. It is essential for you to imbue these students with standards and values that will help them make choices about everything from the entertainments they watch and participate in to the colleges they attend and the careers they pursue." Of course, he was speaking in a particular context to teachers teaching rich students but I think the fact that we teachers need to give our students the ability to choose responsibly surely holds good.

Action Outside the Classroom

Let us leave the classroom and move to the actions that the head of the school mentioned at the beginning of this article talks about : games, cultural programmes, parents' nights, social service camps and so on. Are they actions in our Integral Pedagogy sense ? They may be. They may not be ! They may be the result of the staff reflecting on their experience of these activities and seeing that they do foster internal growth in their students. But basically they are learning experiences and they may include internal growth. Or the opposite.

A game may become a fierce competition to win at all costs with the coach demanding full effort, and in the event of the team losing, protesting that the referee was unfair, and pointing out that the players had disgraced the school even though they had tried their best. The head of the school may praise the team when it wins but either make no remark of its effort when it loses, or even endorse the coach's opinion that the team members have let down the name of the school. So the students pick up the message that winning is all that matters in life. And the school administration obviously has not reflected on the games activity and its meaning for the all round growth of the student in the context of the overall aims of the school.

Parents Nights

Let us look at parents' nights. Activity or Action ? It depends. I was talking to parents about the school parents' night in which their young daughter in class I took part. She and the other students in her class had to buy clothes and masks to make up as

animals - only 600 Rupees per child ! The daughter was on the stage for about 3 minutes and because there were many 'animals' like their daughter, they couldn't even recognise her. There were many similar colourful items. At a conservative estimate the parents must have spent three lakh rupees to get their children on the stage for this wonderful, colourful show. Was such a parents' night an action, one planned after reflection on the values being communicated to the parents ? Certainly the parents I talked to were not happy to waste hard earned money on items which would be of use only for 3 minutes and after that be of no use.

Reflection on School Activities

We could take other activities of the school. There are learning experiences. Does the staff come together to reflect on whether these learning experiences are building up the students into compassionate, caring students ? Does the staff reflect with the head of the school on whether the various activities are helping or hindering the stated aims of the school ? After the social service camps, do the students, with the teachers reflect on their experience living with simple villagers, on how much they learnt from the experience, and on how it has affected their attitudes. Or is the social service camp just one more item in the school routine that has to be completed ?

Context Influences Attitudes

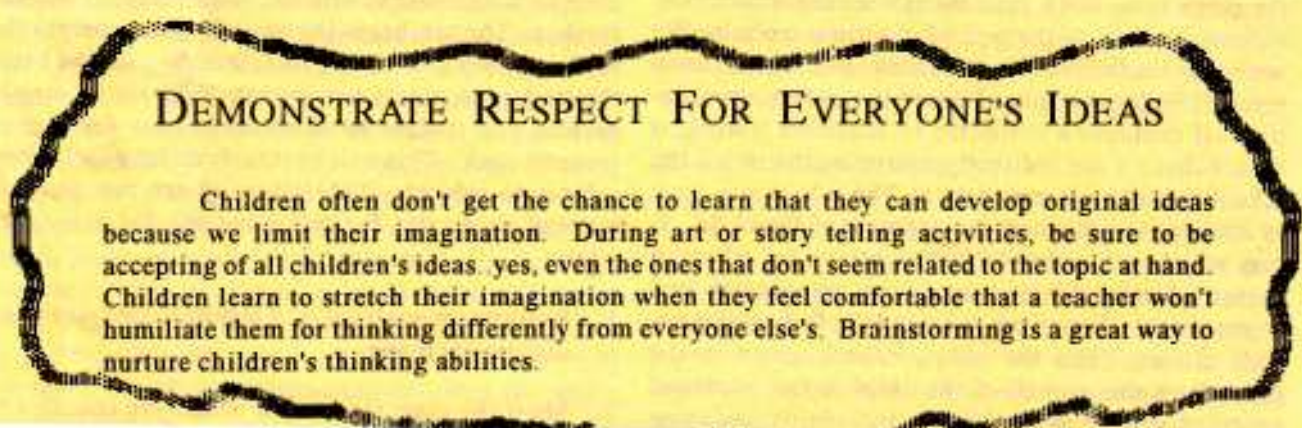
Of course the action, the interior growth we are talking about, the positive attitudes and value we wish to build up, are intimately connected with the first element of the integral pedagogy paradigm, the context. A student may come from a home where these positive values are being nourished whereas another may come from a home where the opposite values are at least indirectly being encouraged. And the actual school climate may be one that is full of

sharing, concern, cooperation or one of competition, striving for academic excellence alone, focussing on individual performance, with an iron discipline that gives no chance for a person to exercise her freedom. Integral Pedagogy insists that the school climate must be analysed to see it is really in conformity with the stated beautiful aims of the school. For the context is also the experience the student naturally reflects upon and in this way attitudes are formed.

Action Fulfills the Vision

Integral Pedagogy is a value based pedagogy. The methodology is meant to enable the student to be guided by the teacher to actively appropriate learning. And the active learning is in view of the vision of a student who wishes to be one of competence, of conscience, of compassion and of commitment to the formation of a better society. It is a vision of students who are ready to enter into the sacrifice and joy of sharing their life with others and who understand that other persons and not material possessions are their richest treasure. Therefore Action in the Pedagogy is the critical final stage in the actual teaching learning paradigm. Though Action is surely deeper personal understanding of a particular truth and therefore means growth in academic competence, it especially is concerned with growth in the formation of conscience, of compassion and commitment.

We have too many example of persons who are academically competent but lack conscience and compassion and are ready to use their competence in selfish ways, even to time explosive devices to kill innocent people in a crowded market place. We want persons of compassion, of conscience, of commitment to society; persons who will use their competence to uplift the poor, to bring peace among warring groups, to bring more efficient ways of farming to poor farmers. This is the action that will make for a better world for all of us to live in.



DEMONSTRATE RESPECT FOR EVERYONE'S IDEAS

Children often don't get the chance to learn that they can develop original ideas because we limit their imagination. During art or story telling activities, be sure to be accepting of all children's ideas: yes, even the ones that don't seem related to the topic at hand. Children learn to stretch their imagination when they feel comfortable that a teacher won't humiliate them for thinking differently from everyone else's. Brainstorming is a great way to nurture children's thinking abilities.

EVALUATION

"Tests daily, weekly, monthly. Only exams, exams, exams." So cries the student. And the teacher, with piles of exercise books or exam papers, cries out, "Corrections, corrections, evaluations. When will it ever end?" Surely evaluation is an area that needs looking into and this is the final element in Integral Pedagogy. So we will be looking at the following questions :-

1. What should be evaluated ?
2. How and by whom ?
3. How often ?

Why should be evaluated ?

The answer, if we judge but current practice, seems obvious. We are meant to evaluate whether the students have learnt what I have taught, i.e. the portion in English or Physics or History. But if we refer back to the other elements in Integral Pedagogy, then we have to ask whether that means facts, information which has to be memorised, or are we trying to evaluate whether student can think for herself, has her own opinions, feelings, on the subject matter. In other words, even when we are evaluation the subjects, our evaluation will depend on the type of questions we are asking. Are they questions for the imagination, the feelings, for analysis, synthesis ? Are they probing questions ? Are they questions demanding one right answer or many right answers ? Do we ask questions relating our subject to the life situation of our students ? Depending on whether we are using model 1 (experience --> action) or model 2 (experience --> reflection --> action), our questions and therefore our evaluation approach will differ.

So the answer seems obvious. We evaluate the subjects we teach even though the evaluation may differ according to the type of questions-we ask. We are in the academic evaluation area. But evaluation in Integral Pedagogy is not limited to academic evaluation. If evaluation is limited to academic testing, it means that we are indirectly admitting that is all the school is really concerned with. The school may have as its aim the all round development of the child. It may say that it wishes to form a person for others, a person of competence, conscience, compassion and commitment. It may say it intends to form a responsible citizen. But the only feedback given to the parents on the growth of the child is the academic progress, with a few remarks on punctuality, industri-

ousness, and co-curricular activities.

Integral Pedagogy insists that evaluation must go beyond academic evaluation. It must be comprehensive because we are concerned with the students' well-rounded growth as persons for others. Therefore evaluation of the student's growth in attitudes, priorities and actions consistent with being a person for others is essential. If we say that we aim at forming persons of competence, conscience, compassion and commitment, there it is only right that we should evaluate these areas and give proper feedback to students and parents on the growth in these areas.

How to Evaluate ?

The how of the evaluation is actually linked with who is to evaluate. But we may say that obviously the teacher is one to evaluate. Is she ? Isn't this contradicting the approach of Integral Pedagogy in which we are advocating that the student takes an active role in her learning, and therefore in evaluation also ? Moreover, when we are embarking on the assessment of a student's character, her concern for others, her compassion, commitment, conscience, cooperation, etc. it does seem more acceptable if the student judges herself rather than the teacher passing judgement. Of course, this will not be easy. It will depend on the maturity of the student, the mentoring system of the school, on the trust climate. We may decide to start a new approach to what is to be evaluated through a teacher centered evaluation. But let us first look at the ideal.

Student-Centered Evaluation

The ideal, even in the academic area, is to encourage student-centered assessment. This will need both a change of attitude and guidance from the teacher. The teacher is the one who accompanies the student in her growth and therefore the one who helps the student to assess her growth. The initial step is helping the student to establish criteria for a good piece of work. This will obviously differ widely from subject to subject. The following are two possible ways of doing this for tasks that ask for essay type work.

1. Brainstorm qualities of a good piece of work and discuss each one.
2. Show the class some work which you consider to

be good. Ask them to divide into small groups, to notice the good points about the work and to list them.

May be the criteria, once selected, could be put on a class notice board so that they can be referred to. Having established the criteria, the following two questions can be asked about the work to be assessed: i) What's good about it? ii) What needs to be improved? The answers may be recorded by each student and attached to the work. And if there is a lot that needs improving, then the student may want to do it again.

Having assessed her own work, a student may wish to seek a second opinion or make comparisons. Where cooperative learning is being used, peer assessment, either in pairs, or in groups, is the obvious way. Moreover peer assessment helps to develop awareness of personal strengths and weaknesses, and gives the student the benefit of another's perspective. The same two questions given above could be used because they are constructive and not derogatory.

The Teacher's Role

Self and peer evaluation doesn't mean the teacher has nothing to do. The following are some of the roles to maintain :-

- i. Making sure the students understand how to evaluate the work
- ii. Staying neutral - resisting the temptation to reject or disallow an assessment
- iii. Encouraging students to check on inaccuracies (rather than pointing out mistakes).

Non-Academic Evaluation

Student-Centered evaluation is even more desirable in the non-academic domain. The teacher is the guide, the companion of the student. She helps the student to draw up a profile of the growth aims for the year with descriptors to indicate the behaviour. Co-operation is one of the aims, so the student is helped to describe what cooperation will mean for her in the daily rhythm of school life. Every two or three months, the student marks where she stands. Trust between the teacher through a mentoring system will enable sharing to take place wherein the student may ask the teacher for a frank opinion of her self evaluation. Or the teacher may give a gentle suggestion that the evaluation is too generous or not generous enough. Clearly this evaluation is meant for senior students.

Evaluation by Teachers

If we are dealing with junior students for whom self evaluation in value and character areas is not feasible, or we feel that the school or the parents or the students are not ready for self-evaluation, then there are ways the teacher can evaluate. Some schools have progress report cards in which the character areas are listed with descriptors (behavioural objectives) in brackets to help the teacher in the assessment. A good exercise for staff meeting is for the staff to suggest descriptors for staff meeting is for the staff to suggest descriptors for a staff meeting is for the staff to suggest descriptors for a particular quality. For example : Responsibility : can be trusted to carry out assigned tasks; is careful of the school and others property. An observant class teacher helped by these descriptors can make a fairly accurate assessment.

However, it is wise to have a teachers' consultative conference so that the class teacher with other teachers who are teaching that class can share their observations. In this way a more objective picture can be obtained. If there is a mentoring system in the school in which the class teacher or home room teacher is the mentor, then she will have a very good idea of the way the student is growing. And if the students are in the habit of journaling, of writing regularly their reflections on their feelings, insights, etc., and there is trust whereby the student can share the journal with the teacher, this will give the teacher further insight into the character of the child.

Observation of the student and co-curricular activities will reveal to the teacher another side of the student. Even better will be giving an opportunity for the student to take part in social service camps, or in regular programmes for the poor. Moreover, Bloom's Taxonomy of the Affective Domain, outlining the levels of a value, can be a great help to evaluate where a student stands. For example, is she i) merely aware of the need to be concerned for the environment or ii) ready to take part in a campaign to grow trees only when asked or iii) willingly volunteering to take part in such a campaign or iv) active in convincing others to take part in such a campaign?

How Often to Evaluate ?

Periodic testing of the academic growth of the student surely will be done more frequently than comprehensive evaluation of the students' well-rounded growth as persons for others. However, it may be good to reflect on the number of weekly, monthly, semester tests that are given, and why they are given. In some schools with frequent written

testing. I asked the teachers why there were so many tests. They usually replied that tests force the student to learn! Yet I have been to schools where there are written examinations only twice or at the most three times a year, and the students seem to learn well, and do well in their final government exams. And of course the teachers are saved from continually 'correcting' exams and weekly tests. These teachers are continually testing their students and observing them in the class itself. Comprehensive evaluation in the Integral Pedagogy sense encompassing the all round growth of the student need not be marked as often as academic testing but it does need to be done periodically in some of the ways described above.

Cooperation with parents

Parents will need to be educated in what we are doing. They probably are used to progress reports with a strong academic bias. A more balanced report

card will have to be explained to them. Such a progress report card will have to be introduced gradually. Possibly, when comprehensive evaluation is first introduced, the teacher, instead of giving a written evaluation in the sensitive character areas, will have to meet parents and discuss with them the evaluation of their child, especially if there is no self assessment system. The aims and objectives of the school may need to be emphasised more so that the parents see that we are trying, with their help, to evaluate the growth of their child precisely in those areas the school considers important. Naturally academic competence will not be downgraded but the vital growth areas of persons of conscience, of compassion and of commitment will be given their due place. Such an approach to evaluation is a challenging task, for it will be faced with the objection that such evaluation is impossible, even dangerous. But if we wish to help our students to the all round growth we talk about so often, then such an evaluation is essential.

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BABY'S DAY OUT

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It was 8.30 am on a Friday morning. The Shri Ram School, New Delhi, prepared for the start of another day. As the children trickled in, full of energy, animated conversation and laughter filled the air. Amidst the cacophony of sounds, was heard the shriek of a two month old baby - an attempt to identify with his new environment for the next two hours. No, we definitely do not admit infants into our school. However, 9th of August, 1996, was an exception. It was Baby's Day Out - a day when all siblings under the age of two, would visit the 'second home' of their older counterparts.

The school looked beautiful with all the cutouts, paintings, streamers, balloons and baby paraphernalia that adorned its walls. In the hall upstairs, the older children introduced the audience to their family - mama, papa and baby. The confidence and pose with which they spoke and conducted them-

selves, was commendable.

Many family secrets were divulged. The highs and lows of a sibling relationship as seen through the eyes of a 5 year old was extremely perceptive, as it was entertaining.

The sense of identity and security that a family inspires was clear when parents and children, alike, spoke of 'our' experiences, and affectionately urged each other to share them. The atmosphere was charged with joy and excitement, but moreover, a sense of pride in the strong bond that the family unit perpetuates - An overwhelming togetherness, untouched by individual personality traits. Soon afterwards our 'little guests' for the day proceeded to enjoy the games and paddle pools, especially laid out for them. Before leaving, they left their footprints on a scroll of paper, but more deeply in our hearts and minds.

TOWARDS TEACHING OF MATHEMATICS AT PRIMARY LEVEL

Whether we teach mathematics, science, language, social science or any other subjects, any particular skill or attitude, the fundamental questions that we should ask are:

1. who is teaching ?
2. who is being taught ?
3. what is being taught ?
4. what is being learned ?
5. why it is being taught ?
6. how much is being taught ?
7. how it is being taught ?
8. what are the pointers for innovation ?

Who is teaching mathematics is a very important question.

The teachers' subject competency:

At primary level, most of us adults know the concepts taught at that level. Hence most of us feel that we are competent. The teachers must be able to arrange the concepts in logical and psychological sequence in small incremental stages.

The teachers' attitude towards the subject:

Some teachers with high degree subject competency may not be able to create interest in children. The teacher must have a positive attitude towards the subject. A teacher who loves maths, who finds poetry, rhythm, beauty and wonder in mathematics will succeed in creating a sparkle in the eyes of those who are learning it.

The teachers' attitude towards the child:

Some teachers teach mathematics and yet others teach the child. Concern towards child and its needs must take priority to the content of teaching. A teacher who believes that children are potential winners and help them to win successively will create self confidence among them towards themselves and the subject.

Who is being taught ?

Developmental stages:

It is the children of three to ten years of age that the teachers are facing in our pre-primary and primary classes. They are at pre-operational stage of mental activity and are slowly reaching the concrete operational stage. Even when they leave primary classes, they have not reached the formal operational stage. This understanding must help the teacher to plan the methodology of teaching.

Emotional needs of the child:

They are at the tender age of needing adult love and care. It is not the rigidity and logic of the subject that they appreciate. They appreciate the teachers' understanding of them and the loving care they get from the teacher.

Curiosity of the child:

They are at an age of curiosity, wonder, openness and the same time, sensitive. They are full of questions. The teachers have to find ways and means of developing these qualities by giving them opportunities to freely communicate with. Help them to satisfy the immediate curiosity and lead them to raise the level of curiosity. Help them to appreciate the wonders of the mathematical world around them while challenging them to discover more of them. The child is an explorer and not a passive recipient of knowledge.

What is being taught:

We are teaching mathematics. Mathematics is one of the basic skills needed for precise communication. Language and literature is a descriptive and imaginative way of communication, mathematics bring quantitative precision to our language. As such mathematics is also a form of language. Hence at pre-primary level, mathematics is more of a language teaching. A child who does not understand the meanings of the words "more-less, big-small" will have no quantitative difference between say 8 and 6.

Maths is also abstract

Maths convey a lot of abstract ideas. At pre-primary level, where children are at pre-operational

stage and concrete operational stage, the need to learn these abstract ideas through repeated concrete activities.

What is learnt ?

It is not always true that what is being taught is what is being learned. The teacher communicates from the mental framework of the teacher while the child is absorbing this from its own limited mental framework. A teacher may be fully aware that the word "sum" has two meanings, i.e. "total" as well as "problem". Over-use of this word to mean "total" in addition problems will imprint in the minds of the children that "sum" means "total". When the teacher ask the child "Do this sum". Out of 20 apples in a box, 5 are rotten. How many are good ones ? The child answers $20 + 5 = 25$ because for the child "sum" means "add the numbers". "Multiply" gives rise to increase of a quantity. Is it always true in the case of integers and fractions ! This difference of mental framework is a common problem while teaching of any concept in maths, language or any other subject.

This problem is of great consequence while the teacher is trying to cultivate certain values. In order to cultivate the habit of hard work a teacher may be tempted create high spirit of competition among the students and the child may learn that coming on top of others is more important than real hard work.

Why it is being taught ?

The immediate answer that comes to us is that we are preparing the children for their future. The child has a present and a future. When we forget about the present and concentrate only on building the future of the child, the child cannot understand and appreciate what is being taught. The topics, concepts and problems that are taught must have some relationship with the child's life at present. A children are not merely miniature adults to be prepared for life. They are persons in their own right. They have got a present to cope with. As such they need to solve their problems of today and our teaching must help them to do this. Then we can think of future. A topic in mathematics will be useful to them in their adult life is not a good excuse to include that in the curriculum. In other words maths which taught in order to help them solve their problems, understand the world around them should have greater emphasis.

In the process of covering a lot of syllabus, most of us teachers forget to teach them to think, to learn by themselves, ability to discover, to analyse problems, to solve problems, to appreciate the art and they rhythm of mathematics. The main content of

teaching mathematics teaching should be development of these skills. This needs a search into our syllabus and methods of teaching.

How much to teach ?

Fortunately, there is an awakening in the teaching community that teaching a lot of content matter is not the way to teach mathematics. Still there are teachers and school systems teaching more than the child at a particular age level can grasp. No doubt they succeed in teaching what they want. But children don't succeed in learning what has been taught. The children are under great strain and as such they consider mathematics as a tough subject which cannot be understood or appreciated. Hence learning of mathematics leave us learning number names, tables of addition, multiplication etc. by rote learning without understanding the concept of numberness or concept of successive addition etc.

How to teach ?

This is one of the most important aspect which needs consideration. Teachers have to bring all what has been said above into focus.

The child's mental developmental level must guide the teacher to plan the type of material and the activities in the class. Any teaching of mathematical concepts will have to start with concrete activities leading to semi-concrete ones and finally to abstraction.

Since the attention span of the children is not long, all the activities must be planned keeping this in mind.

The material that is used for teaching and the content that is taught must be familiar to their life situation. Child's physical, social and cultural environment should be the basis on which the abstract concepts should be developed.

The teaching must be done in small incremental stages and evaluated so that the child must feel a winner. Success breeds success.

The teaching must concentrate on helping the child discover the mathematical concepts, the inter-relationship of different concepts (addition and subtractions, addition and multiplications).

Children are physically active by nature. When ever possible the active physical participation by the children must be used in order to teach and evaluate the concepts.

Logical sequence verses psychological sequence:

The teacher must use the logical sequence of the subject and the psychological sequence of the child judiciously while planning the lessons without losing the importance of either of them.

e.g. Logical sequence could be teaching say multiplication tables of two, three, four etc. up to ten. Psychological sequence could be to teach tables of two using the same principle of successive addition. Now teaching table of ten, and fives, then fours and eights, followed by three, six, nine and at last seven.

In primary class, children may become very

competent in the four operations. But when it comes to solving verbal problems, they do not know what operations or combinations of operations to use. Hence the teacher in the primary class in order to make the operations meaningful must help the children with a variety of oral verbal problems from their life situations and help them to analyse problems to see what kind of operations to be used at different situations.

Retention of certain facts (addition facts, multiplication facts) are necessary, plenty of recitation of these have to take place in the class. But this must be done in a variety of interesting and exiting ways. (hear, say, see, write and use).

WHAT IS TEACHING ALL ABOUT

- T - Teachers caring TOUCH makes every child go far,
- E - High EXPECTATIONS inspire him to reach for a star,
- A - Positive ATTITUDES can achieve truly impossible tasks,
- C - For sincerity and CARE is what a pupil really asks,
- H - Let's HELP them to discover, what they already know,
- I - With total INVOLVEMENT make their minds burn and glow,
- N - Accept their NAUGHTINESS with a sense of humour and jest,
- G - GIVE freely and fully of yourself teacher and from children,

You will get nothing but the very **BEST!!!!**

MULTIPLE - INTELLIGENCE

In 1904 French psychologists Alfred Binnet and his group of colleagues tried to develop a means of determining which primary grade students were "at risk" for failure so they can be provided with remedial attention. They formulated the intelligence tests. Though it is a very positive attempt, they assumed that there is something called "intelligence" and can be objectively measured and reduced to a single number or "I.Q." score. They assumed that intelligence is a single entity and that it could be measured by a single paper and pencil instrument. The intelligence tests became wide spread for almost a country.

After 80 years of the development of intelligence test, psychologist Howard Gardner challenged this commonly held belief. In his book "Frames of Mind" he treated "intelligence" as a property or more precisely - a set of human potentials - that exists only inside the head of the isolated individual. His further researches and studies lead him and his colleagues to believe that intelligence is "contextualised" and "distributed". 'Contextualised' means that we conceive intelligence in terms of the particular social and cultural context in which the individual lives, 'distribution' means that a significant part of an individual's intelligence exists outside his or her head, inhering in the human or material resources that he or she has or (can make) available.

Stating that our culture has defined intelligence very narrowly, Gardner proposed that there are multiple intelligence with autonomous intelligence capacities. In his Multiple Intelligence theory he speaks of at least seven basic intelligences. Thus he suggests that there are probably many others. This he sought to broaden the scope of human potential beyond the confines of IQ score.

The seven basic intelligences he proposed are verbal :-

1. Linguistic Intelligence
2. Logical - Mathematical Intelligence
3. Spatial Intelligence
4. Body - Kinesthetic Intelligence
5. Rhythmic - Musical Intelligence
6. Inter-personal Intelligence
7. Intra-personal Intelligence

1. **Verbal Linguistic Intelligence** : This intelligence is responsible for production of language and all the complex possibilities that follow, including poetry, humour, story telling, grammar, metaphors, similes, abstract reasoning, symbolic thinking, conceptual patterning, reading, writing. This intelligence can be seen in such people as poets, play writers, story tellers, novelists, public speakers, comedians writers, journalists.

2. **Logical - Mathematical Intelligence** : The ability to use numbers (as mathematician, accountant, statistician) and to reason well (as scientist, computer programmer or lawyers). This is most often associated with scientific thinking, inductive and deducting thought process. It involves the capacity to recognise patterns, work with abstract symbols, discern relationships and see connections between separate pieces of information. It involves all the capacity to categorise, classify, infer, generalise, calculate and hypothesis testing.

3. **Visual - Spatial Intelligence** : The ability to perceive visual - spatial world accurately (e.g. : hunter, scout, guide), to perform transformations upon these perceptions (e.g. : an interior decorator, architect, artist, inventor) sensitivity to colour, line, shape, form, space and relationship between these elements. The base of this intelligence is the sense of sight. The ability form mental images and pictures in mind.

4. **Body / Kinesthetic Intelligence** : The ability of using one's body to express ideas and feelings, (e.g. : actor, dancer, athlete) ability to use the hands to produce and transfer things (craft person, sculptor, mechanic, surgeon). "Learning by doing" has long been recognised as an important part of education. This intelligence includes physical skills such as coordination, balance, dexterity, strength, flexibility and speed as well as tactile capacity (e.g. : riding a bike, roller skate, typing).

5. **Rhythmic - Musical Intelligence** : The capacity to recognise and use rhythmic and tonal patterns and sensitivity to sounds from the environment, human voice and musical instruments. This intelligence can be seen in advertising people, professional musicians, composers, music teachers,

rock groups etc. Of all forms of intelligence, the "consciousness altering" effect of music and rhythm is probably the greatest.

6. **Inter-personal Intelligence** : This involves the ability to work cooperatively with other people, the ability to communicate verbally and non-verbally with other people, the capacity to notice the distinctions among other, their moods, temperaments, motivations and respond accordingly, the ability to emphasis with others feelings, fears, anticipations and beliefs (e.g. counselors, therapists politician and religious leaders).
7. **Intra-personal Intelligence** : This involves self knowledge and the ability to act on the basis of that knowledge. It involves knowledge of the internal aspects of self, such as feelings, emotional responses, thinking process, self reflection and spiritual realities, an actual picture of one's strengths and limitations, inner moods, intentions, motivations, temperaments and desires. Intra personal intelligence allows us to be conscious of our consciousness, to step back from ourselves and watch ourselves as an outside observer. It provides us the capacity to experience wholeness and unity, to dream and actualise the possible. (e.g. philosophers, psychiatrists, spiritual counsellors etc)

The beauty of this frame work of intelligence is that all of have all these intelligence. Some of them are developed more than the others in each individual. We do not know how to use all these. But we have within us the capacity to activate all of our intelligences ! Another good news is that intelligence is no more a static entity. Each of these intelligence can be taught and developed in a person.

Each intelligence can be taught as a subject in its own right. For e.g. Rhythmic and Music skills, language, Art and Mathematical skills as formal subject skillful body movement as physical education, dance, drama and social skills for effective functioning of our society.

Each intelligence can be used as a means of learning : using body for learning vocabulary, music to teach mathematics, art, (drawing, painting and sculpture) for different periods of history and different cultures and so on.

The students may be taught about multiple intelligence, how to assess them how to strengthen them and how to actively use them in learning and in every day life.

The following are brief descriptions of how each type of intelligence works and the types of activities children with each type of intelligence seem to enjoy.

Linguistic Intelligence

Sensitivity to the meaning and order of words and to the varied used of language.

The child loves stories, jokes, riddles, tongue twister, and trivia.

A child with I linguistic intelligence :

- * does very well in school situations,
- * reads and writes well,
- * spells easily, enjoys word games,
- * spends a lot of time in the book corner,
- * asks for experience charts,
- * remembers new words easily.

Logical-Mathematical Intelligence

The ability to handle long chains of reasoning, to recognize patterns in the world.

A child with strength in this type of intelligence loves to think conceptually, see patterns, "figure it out," question, wonder, and compute.

A child with high logical-mathematical intelligence :

- * loves collections,
- * enjoys sorting activities, puzzles, brain-teaser challenges, numbers, and computer games.

Spatial Intelligence

The ability to see the physical world accurately and translate it into new forms.

This child loves to imagine real things, draw real representations, knows where everything is, and is fascinated with contraptions.

A child with strong spatial intelligence :

- * loves art and craft activities,
- * enjoys maps and charts,

- * loves videos and photos,
- * like puzzles and mazes,
- * enjoys colour and design.

Body-Kinesthetic Intelligence

A fine-tuned ability to use the body and handle objects.

This child loves to touch, stroke things, fidgets, is very active. This child is in tune with bodily sensations, is a clever mimic of mannerisms, gets "gut" feelings.

A child with strong bodily kinesthetic intelligence :

- * enjoys anything athletic,
- * fixes things,
- * loves role playing,
- * is a born actor/actress,
- * adores process art and working with sensory materials

Rhythmic-Musical Intelligence

Sensitivity to sounds in the environment, pitch, melody, rhythm, and tone.

A child with strong musical intelligence loves to sing, hum, chant, or make patterned rhythms.

A child with strong musical intelligence :

- * enjoys music,
- * remembers melodies,

- * keeps a beat with musical instruments,
- * shows strong preferences in music,
- * enjoys poetry,
- * enjoys the listening center.

Inter-personal Intelligence

The ability to notice, communicate with, and appreciate others.

This child loves people, can empathize, is 'street smart', and volunteers often. This child is a natural leader, mediates arguments between other children, and makes new friends effortlessly.

A child with strong inter - personal intelligence:

- * loves cooperative games,
- * enjoys group problem - solving activities.

Intra-Personal Intelligence

Sensitivity to one's own "inner feelings."

This child day dreams, enjoys the private world of imagination, has high ideals, and seems very independent.

The child with a high degree of intrapersonal intelligence :

- * prefers to be alone,
- * keeps a diary,
- * has well developed personal hobbies,
- * 'marches to the beat of a different drummer'.

DEVELOP A CLASSROOM ATMOSPHERE THAT IS ACCEPTING OF MISTAKE

Some children need to try out ideas several times before finding what works, i.e. how to make a building balance or how to create a mobile that is stable. Mistakes are a very important part of the learning process. Be sure to let children know that mistakes are a great way for learning what doesn't work.

WALL PAPER

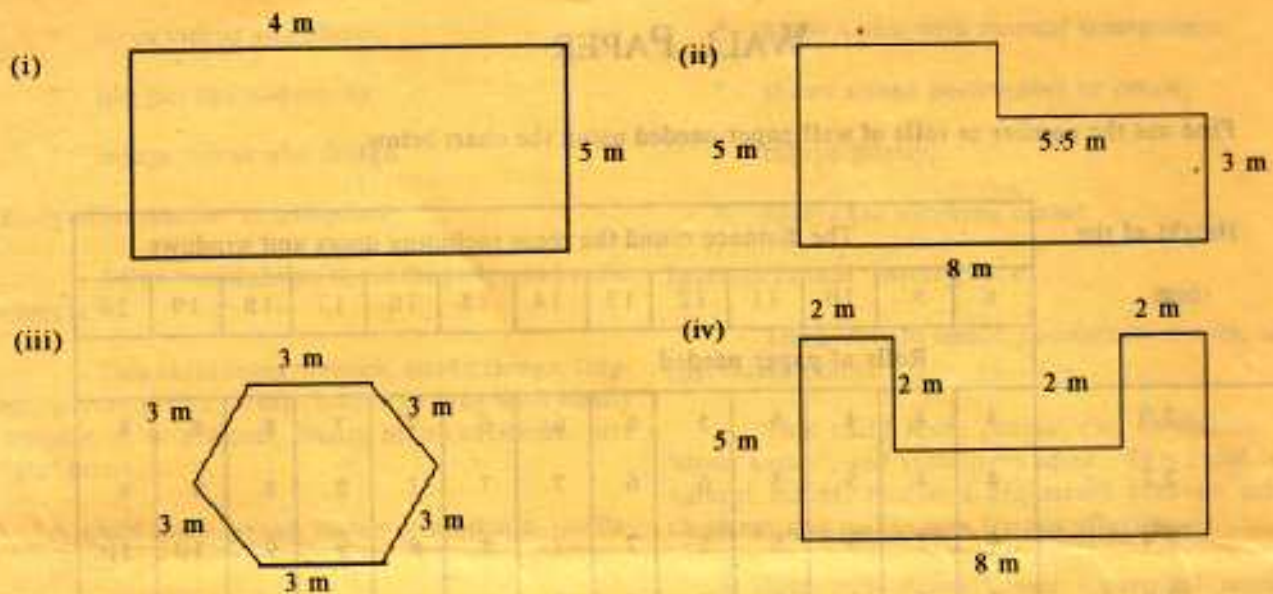
Find out the number or rolls of wall paper needed using the chart below.

Height of the room	The distance round the room including doors and windows.												
	8	9	10	11	12	13	14	15	16	17	18	19	20
	Rolls of paper needed												
2.0	4	4	4	5	5	6	6	6	7	7	8	8	8
2.2	4	4	5	5	6	6	7	7	7	8	8	9	9
2.4	4	5	5	6	6	7	7	8	8	9	9	10	10
2.6	5	5	6	6	7	7	8	8	9	9	10	10	11
2.8	5	6	6	7	7	8	8	9	9	10	10	11	12
3.0	5	6	6	7	8	8	9	9	10	11	11	12	12

- I Calculate the number of rolls needed.

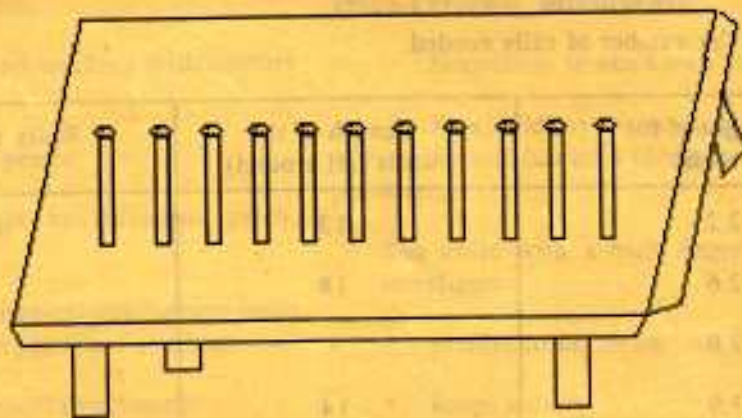
Height of the room	Length of the walls (all around)	Rolls needed
2.2	12	6
2.6	18	
2.0	9	
3.0	14	
2.8	19	
2.4	10	
2.6	11	
3.0	18	

- II If a wall is 2.4 m find the longest length of walls you could fix paper with (i) 6 rolls (ii) 7 rolls (iii) 9 rolls.
- III If the distance of the walls round the room is 16 m, what is the largest height you could fix paper the room with (i) 7 rolls (ii) 9 rolls.
- IV A room measures 4 m by 5 metre. The height is 2.4 m. What is the cost of papering the wall at Rs.800/- per roll.
- V Find the number of rolls of paper needed to paper the following rooms if the height of the rooms are the 2.4 m.



EXPLORING MATHEMATICS

Match-stick game



There are eleven match sticks laid on the table. The game is played by two players. The two players take turns to remove 1, 2, or 3 match sticks from the table. The winner is the one who removes the last match stick.

The aim is to find out a winning strategy.

Since you can remove only 1, 2, or 3 match sticks at a time, always leave a multiple of 4 on the table. If you are playing with somebody who knows this trick, you have to start the game if you want to win.

1. If you play the game with 21 match will you be able to win ?
2. If you can take 2, 3, or 4 matches at a time from 22 can you win ?
3. If you can take 4, 5, or 6 matches at a time from 36 can you win ?
4. If you can take 4, 5, 6, or 7 matches from 39 can you win ?
5. Find out a general strategy irrespective of the size of the leap and whatever the choice of number to take away.

THE FEELING OF A SLOW LEARNER

I want to read, to read like the other students
I don't want to be called names STUPID ! ILLITERATE ! DUMB ! HOPELESS !
I am not all that, I am just slow
No one really cares, No one wants to talk and listen to me.

Why ? Because it would be degrading for them
But how do I feel ? Like a worm sometimes
A little worm, having always to crawl into a hole

People call me names, I get hurt
People scold me for my slowness, I get hurt

Tell them, tell them that I too am human, I have feelings
Many things bother me but I dare not say anything
I fear people laughing at me behind my back
People pointing fingers at me
People giving me sympathetic looks and smiles

I am a person but sometimes I feel like a worm
I want to open myself, I am a beautiful person inside
I want to have friends, to have people who care and love me

Should I take the first step ? What if they reject me ? What if
Sometimes I wonder if people do care for me
People say they care, they say they want to be friends
But why, why everytime I see them and greet them
They turn away shamefaced and pretend that they've never seen me

I am lost, alone in this world
that is why I withdraw from others,
why I close tightly like a bud

I don't like people probing about my life
asking inquisitive questions, playing God
I feel that they do that because they feel it's their duty
not because they want to or because they care
I WANT TO BE WANTED !

I will open up when I fully trust them
Don't force it out of me
Don't make me say things I don't want to

PLEASE LISTEN, I TOO AM A PERSON
PLEASE LOVE ME AS A PERSON
LOVE ME AS A PERSON OR LOVE ME NOT AT ALL !

THE MIND OF A CHILD

The mind of a child is a beautiful place,
An Eden where many things grow,
A garden of beauty where sheltered by love
Grow flowers in row upon row.

The mind of a child is a wonderful place
Where wished and dreams are quite real,
And kittens and puppies and gingerbread men
Can talk and can actually feel.

The mind of a child is a mystical place
Where character grows like a tree
And children become either better or worse
From actions of you or of me.

Herbert Parker

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Dear Friends,

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Thank you for your continuing support. Out best wishes for 1997.

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